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Site Analysis
North Bronson Industrial Area
Bronson, Michigan

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NOTICE

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ABSTRACT

This report presents an analysis of aerial photography of the North Bronson Industrial Area, located in Bronson, Michigan. The site was analyzed to assist the Environmental Protection Agency (EPA)'s Region 5 in an effort to locate and identify past disposal activities and/or potential contamination sources.

Collateral information supplied by EPA Region 5 states that pollution from this site has killed livestock. In 1934 plating wastes leaked from the lagoons over and through the dikes into storm sewer drain #30. Following this occurrence, a second set of lagoons was constructed. Five facilities operate in the North Bronson Industrial Area, and four of these facilities utilize the lagoons.

Findings include evidence of liquid disposal in areas outside the lagoons, disposal areas consisting of debris and possible and probable drums, and evidence of drainage from the lagoons to an adjacent tributary. Stains, wet soil, and pools of liquid also are noted.

Hydric soils information from the county soil survey and wetlands delineated on the National Wetlands Inventory Map have been annotated for the area within a 2-kilometer (1.2 mile) radius of the site onto the 1988 photography.

The EPA's Environmental Photographic Interpretation Center in Warrenton, Virginia, a branch of the Advanced Monitoring Systems Division of the Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, performed this analysis at the request of the Superfund Support Section of EPA Region 5 in Chicago, Illinois, and the Office of Emergency and Remedial Response in Washington, D.C. This analysis covers the period between 1938 and 1988, and the report was completed in December 1992.

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FIGURES

INTRODUCTION

An analysis of aerial photography was performed on the North Bronson Industrial Area, located in Bronson, Michigan. The site comprises 59.5 hectares (148 acres), and its CERCLIS ID Number is MID005480900.

The Environmental Protection Agency (EPA)'s Region 5 requested this analysis for determination of possible ground water contamination sources.

Figure 1 shows the site location, keyed to a mosaic of two U.S. Geological Survey (USGS) 1:24,000-scale topographic maps. Site boundaries or areas used in this analysis were determined from observations made from the aerial photography in conjunction with collateral data supplied by EPA Region 5 and do not necessarily denote legal property lines or ownership.

Aerial photography of the North Bronson Industrial Area was obtained to represent the period from 1938 to 1988.[1] Black-and-white photography from 1938, 1950, 1955, 1958, 1960, 1967, 1974, and 1988; and color infrared photography from 1978 were used for this analysis. Photography from 1960 and 1974 was analyzed but not reproduced for this report due to the poor resolution of the photography and/or the lack of significant features, activities, and/or change. Any significant changes noted in 1960 and 1974 will be annotated and discussed with the following year of photography reproduced in this report.

Collateral information supplied by EPA Region 5 states that five facilities, consisting primarily of plating operations, occupy the area known as the North Bronson Industrial Area. These facilities have discharged wastewater into two sets of lagoons.

In 1930, before lagoons were constructed, cyanide from this site killed cattle and fish. A set of lagoons were constructed in the "late 1930's" to help contain these pollutants. The lagoons became overtaxed in 1949, and wastes leaked into a nearby

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[1]A complete listing of maps and photography used in this report is provided in the References section.

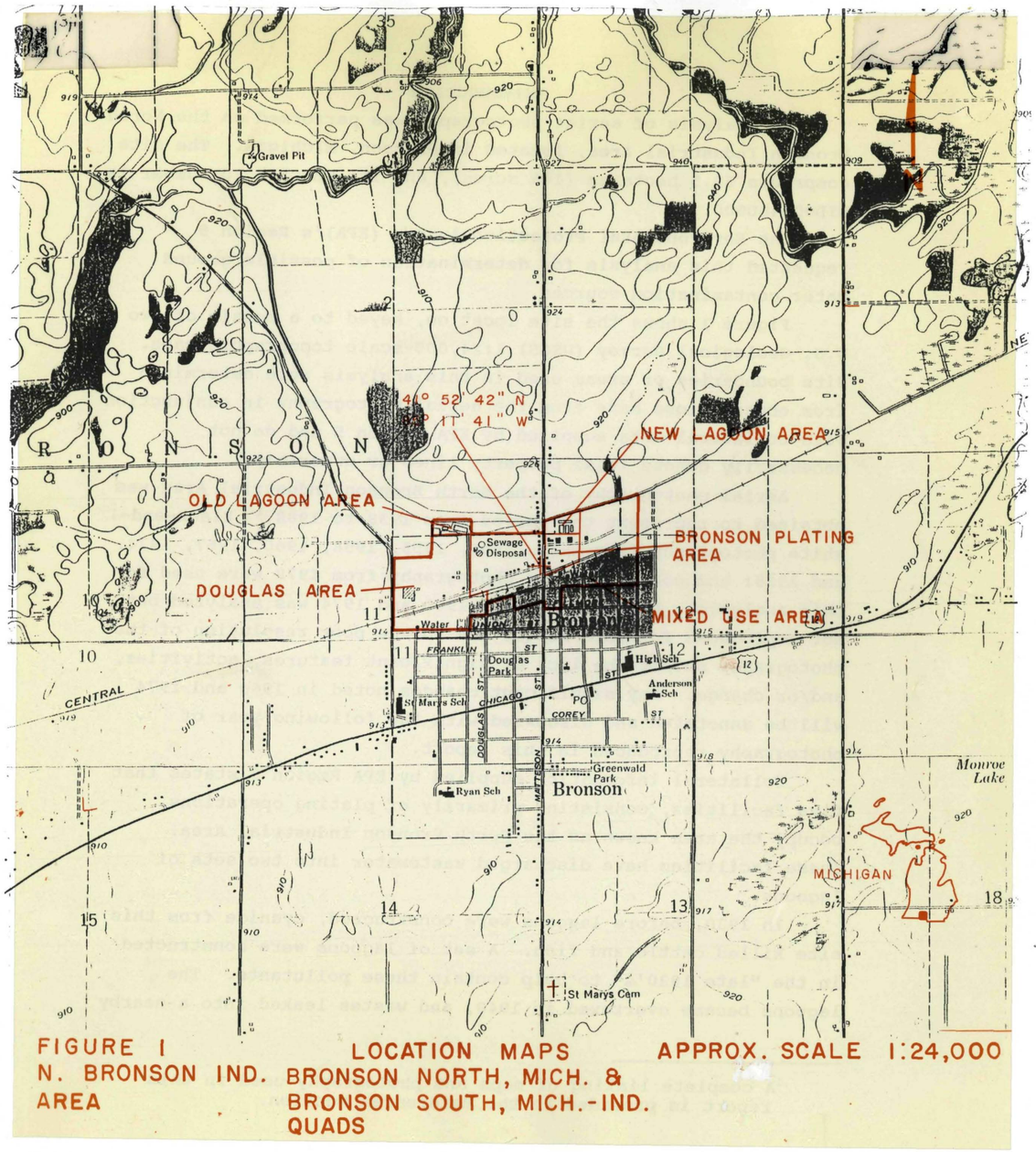

FIGURE 1 LOCATION MAPS APPROX. SCALE 1:24,000
N. BRONSON IND. AREA BRONSON NORTH, MICH. & BRONSON SOUTH, MICH.-IND. QUADS

storm drain and "bubbled up through industrial sewer covers in some of North Bronson's streets." A second set of lagoons (new lagoons) were constructed in late 1949. One of the five facilities here was permitted to discharge into the old lagoons, while the remainder discharged into the new lagoons.

Ground water contamination has been noted in monitoring wells and a residential well.

Findings indicate that the lagoon construction timetable is consistent with collateral data. Direct evidence of leakage from lagoons is not noted; however, a drainage channel that could divert liquid from the old lagoons to a nearby tributary is noted in 1955 and 1958. Areas of staining and wet soil are noted throughout the period of analysis, possibly indicating liquid disposal. Debris, dark-toned material, containers and probable and possible drums are noted throughout the site.

The site is divided into five areas in order to simplify the analysis: The Douglas Area, Old Lagoon Area, Mixed Use Area, New Lagoon Area, and Bronson Plating Area. The names assigned to these areas correspond to the known facilities located within them. These areas are identified on Figure 1 and on separate overlays for all the figures.

The 1988 photography (Figure 2) shows the location of hydric soils from the county soil survey and wetlands delineations from the National Wetlands Inventory Maps for the area within a 2-kilometer (1.2-mile) radius of the site.

The EPA's Environmental Photographic Interpretation Center in Warrenton, Virginia, a branch of the Advanced Monitoring Systems Division of the Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, performed this analysis at the request of the Superfund Support Section of EPA Region 5 in Chicago, Illinois, and the Office of Emergency and Remedial Response in Washington, D.C. This analysis covers the period from 1938 to 1988, and the report was completed in December 1992.

FIGURE 2
N. BRONSON IND. AREA

HYDRIC SOILS/NWI WETLANDS
JULY 7, 1988

APPROX. SCALE 1:18,700

METHODOLOGY

A search of government and commercial sources was undertaken to obtain the best available aerial photography of the site spanning the desired time frame. The photography and other sources of information used in this report are listed in the References section.

The analysis was performed by viewing backlit transparencies of aerial photography through stereoscopes. Stereoscopic viewing creates a perceived three-dimensional effect which, when combined with viewing at various magnifications, enables the analyst to identify signatures associated with different features and environmental conditions. The term "signature" refers to a combination of visible characteristics (such as color, tone, shadow, texture, size, shape, pattern, and association) which permit a specific object or condition to be recognized on aerial photography.

The terms "possible" and "probable" are used to indicate the degree of certainty of signature identification. "Possible" is used when only a few characteristics are discernible or these characteristics are not unique to a signature. "Probable" is used when incrementally more characteristics are discernible. No qualifying terms are used when the characteristics of a signature allow for a definite feature identification.

Photographic prints were made from those years of aerial photographic coverage that reveal significant information about the site. The analyst's findings are annotated on overlays to prints and/or base maps and described in the accompanying text. Site boundaries or areas used in this analysis were determined from observations made from the aerial photography in conjunction with collateral data supplied by EPA Region 5 and do not necessarily denote legal property lines or ownership.

Due to factors inherent in the photographic printing process, prints do not exhibit the level of detail that is visible in the original aerial photography. Therefore, some features identified from the aerial photography may not be

clearly discernible, or even visible, on the photographic prints presented in this report.

Color infrared film has been reproduced for the 1978 photography (Figure 8). Normal color film records reflected energy in the blue, green, and red portions of the electromagnetic spectrum. Color infrared film differs in that it is sensitive not only to reflected blue, green, and red energy, but also to reflected energy in the infrared portions of the electromagnetic spectrum; however, the blue energy is filtered out and only the green, red, and infrared energy is recorded. When color infrared film is processed, it displays "false" colors that do not correspond with the true colors of the features photographed. For example, features that are highly reflective in the infrared portion of the spectrum, such as healthy green vegetation, appear red to magenta on color infrared film. The false color displayed by a feature is produced in accordance with the proportions of infrared, green, and red energy it reflects. These proportions are referred to as the feature's "spectral reflectance characteristics." To interpret the true color of a particular feature accurately from color infrared film, a knowledge of the spectral reflectance characteristics of that feature is required. This information is not readily available for the majority of features identified in this report. Therefore, unless otherwise indicated, no attempt is made to interpret the true colors of features identified on the color infrared film analyzed for this report.

Wetlands (W) and uplands (U) delineations are included on an overlay to the 1988 photography in an effort to identify wetlands within a 2-kilometer (1.2-mile) radius of the site. Placement of wetland boundaries is based on the presence of soils series that are listed as hydric by the United States Department of Agriculture (USDA), Soil Conservation Service (SCS) publication Hydric Soils of the United States, and by the use of the National wetland Inventory (NWI) map of the area published by the U.S. Fish and Wildlife Service (FWS). The USDA SCS definition of hydric soil is as follows: "A hydric soil is saturated, flooded

or ponded long enough during the growing season to develop anaerobic conditions in the upper part."

Designations of open water systems such as lakes, ponds, and rivers in the USDA SCS or NWI publications are annotated as open water in the analysis. Some upland areas may be included within delineated wetlands due to anthropogenic changes that have occurred since the publication of the NWI map. This data transfer of wetlands information is not meant to include all possible wetlands surrounding the site or to delineate jurisdictional upland/wetland boundaries. The utility of this effort lies in designing the most probable locations of wetlands within the study area.

AERIAL PHOTO SITE ANALYSIS

JUNE 13, 1938 (FIGURE 3)

The poor resolution of this year's photography prevents the identification of some features. Features that are observed in subsequent years of analysis may be present but not discernible on the photography from this year.

Buildings (B) will only be annotated when first observed, and will not be annotated in subsequent years. Buildings will not be discussed unless they are used for feature locational purposes or associated with a significant observation.

Tanks will not be annotated or discussed unless associated with a significant observation such as leakage and/or staining.

<u>All Areas</u>

This photography illustrates pre-site conditions, although some buildings are present in the Mixed Use Area.

The lagoons reportedly constructed in the late 1930's are not seen this year; however, an excavation (EX) noted near the west edge of the Old Lagoon Area may depict initial lagoon construction. No other evidence of lagoons is observed.

A possible impoundment (IM) borders the railroad (not annotated) in the southeast corner of the Mixed Use Area.

These areas will be referred to separately in subsequent years of photography as activity increases.

LEGEND

B - Building
C - Containers
CA - Cleared Area
D - Drums
DA - Disposal Area
DB - Debris
DG - Disturbed Ground
DK - Dark-Toned
EQ - Equipment
EX - Excavation
GS - Ground Scar
HT - Horizontal Tank
IM - Impoundment
L - Lagoon
LQ - Liquid
LT - Light-Toned
M - Material
MM - Mounded Material
MT - Medium-Toned
O - Object
OS - Open Storage
PM - Piping Materials
ST - Stain
U - Uplands
VT - Vertical Tanks
W - Wetlands
WS - Wet Soil
WWT - Wastewater Treatment

- - - - Access Road
——— - Area Boundary
→→→ - Channelized Drainage
⊐ ⊏ - Culvert
—·—·→ - Drainage
TTTTT - Edge of Slope
—×—×— - Fence
——— - Site Boundary
>——< - Trench

FIGURE 3
N. BRONSON IND. AREA

JUNE 13, 1938

APPROX. SCALE 1:6,000

JULY 1, 1950 (FIGURE 4)

A drainage analysis was performed for this year. Only significant changes in drainage patterns will be annotated and/or discussed in subsequent years.

Surface drainage from the northern site boundary moves northward into a tributary of Swan Creek; however, no direct drainage pathways are observed. Any overflow from the old and new lagoons would flow into this bordering drainage pathway.

A drainage channel extends from a lagoon in the old lagoon area. This channel may divert liquid into the tributary of Swan Creek. It will be annotated in subsequent years of photography but will be discussed only when a significant change occurs.

The individual areas identified on the photography will be referred to separately for this year and on all subsequent years of analysis.

Old Lagoon Area

The old lagoons (L) were constructed in the late 1930's, and wastes from these lagoons reportedly breached the berm and flowed into a storm drain. No evidence of leakage from lagoons is observed at this time. All the lagoons are bermed.

A light-toned linear object, possibly piping material (PM), extends from the largest lagoons to the drainage channel.

New Lagoon Area

The "new" lagoons were reportedly constructed in 1949 after wastes breached the berm of the old lagoons. A small building is seen near the western boundary of the New Lagoon Area.

Douglas Area

Buildings, dark-toned (DK) material (M), stains (ST) and wet soil (WS) are noted in the southeastern portion of the Douglas Area. Probable light-toned (LT) material is piled north of the southernmost new building.

Mixed Use Area

Disturbed ground (DG) is noted near the southwest corner of the Bronson Plating Area.

Light-toned material and areas of liquid (LQ) are seen where a possible impoundment was observed in 1938.

Bronson Plating Area

No notable features are seen in this area.

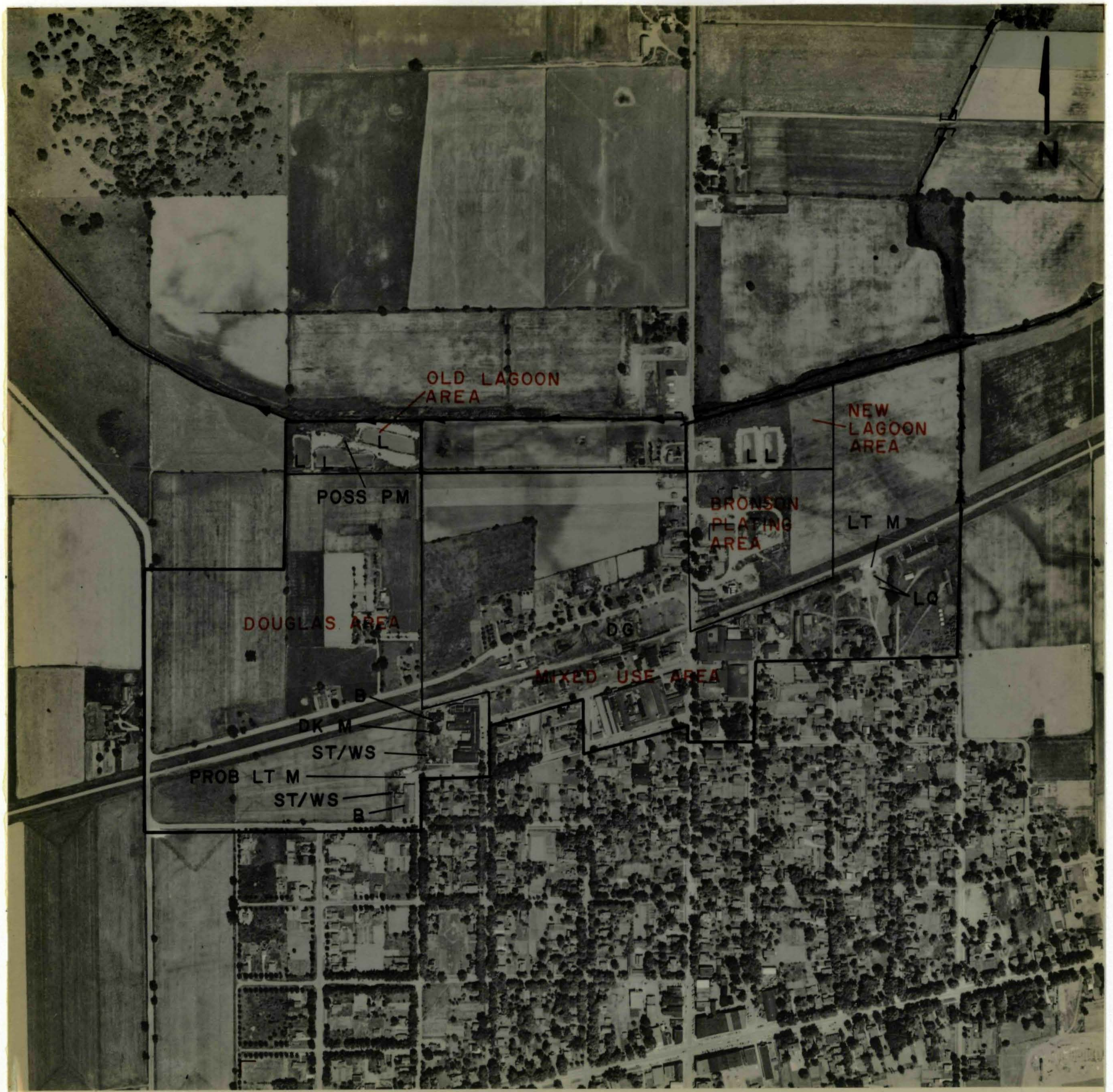

FIGURE 4
N. BRONSON IND. AREA
JULY 1, 1950
APPROX. SCALE 1:7,000

LEGEND

B - Building
C - Containers
CA - Cleared Area
D - Drums
DA - Disposal Area
DB - Debris
DG - Disturbed Ground
DK - Dark-Toned
EQ - Equipment
EX - Excavation
GS - Ground Scar
HT - Horizontal Tank
IM - Impoundment
L - Lagoon
LQ - Liquid
LT - Light-Toned
M - Material
MM - Mounded Material
MT - Medium-Toned
O - Object
OS - Open Storage
PM - Piping Materials
ST - Stain
U - Uplands
VT - Vertical Tanks
W - Wetlands
WS - Wet Soil
WWT - Wastewater Treatment

- Access Road
- Area Boundary
- Channelized Drainage
- Culvert
- Drainage
- Edge of Slope
- Fence
- Site Boundary
- Trench

JULY 18, 1955 (FIGURE 5)

Old Lagoon Area

A fourth lagoon is observed this year. This lagoon is smaller than the three seen in 1950. A drainage channel, located where possible piping material was seen in 1950, possibly drains into the tributary just north of the lagoons.

New Lagoon Area

A third lagoon has been constructed within this area.

Douglas Area

A building has been constructed near the western Douglas Area boundary. The building noted at the southeast corner of this area in 1950 has been expanded. Staining and wet soil were observed in 1950 in the location where the building construction has taken place.

Possible stains/wet soil are seen in the same location as in 1950. Probable light-toned material seen here in 1950 is no longer evident.

Mixed Use Area

Rectangular ground scars (GS) surrounded by dark-toned material are noted southwest of the Bronson Plating Area. This was an area of disturbed ground in 1950. Square ground scars are seen west of the rectangular ground scars.

Equipment (EQ) and possible containers (C) as well as liquid and probable wet soil are noted near the southern boundary of the Mixed Use Area. Liquid is also seen near the equipment/possible containers in the southwest corner of the Mixed Use Area.

The dark-toned areas farther east, near the eastern site boundary, may be areas of liquid or wet soil.

Light-toned areas, possibly liquid, are seen south of the railroad adjacent to the dark-toned areas. Light-toned material and liquid were seen in this location in 1950.

A series of vertical tanks (VT) with an access road (not annotated) extending through the Bronson Plating Area are seen at the northeast edge of the site within the Mixed Use Area. The purpose of these tanks is unknown; however, their appearance is similar to grain storage silos. These tanks will not be

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- DK - Dark-Toned
- EQ - Equipment
- EX - Excavation
- GS - Ground Scar
- HT - Horizontal Tank
- IM - Impoundment
- L - Lagoon
- LQ - Liquid
- LT - Light-Toned
- M - Material
- MM - Mounded Material
- MT - Medium-Toned
- O - Object
- OS - Open Storage
- PM - Piping Materials
- ST - Stain
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FIGURE 5
N. BRONSON IND. AREA JULY 18, 1955 APPROX. SCALE 1:7,600

discussed or annotated further unless they are associated with a significant observation.

Bronson Plating Area

New buildings are seen within this area. Otherwise, no significant features are noted.

APRIL 25, 1958 (FIGURE 6)

Old Lagoon Area

Four lagoons were seen in 1955; a fifth lagoon is seen this year.

A probable drainage channel present since 1955 may drain liquid from this area into the tributary farther north. Lagoon construction has altered the location of this drainage channel.

New Lagoon Area

Three lagoons were observed here in 1955. A fourth lagoon is noted this year.

Douglas Area

Three excavations are noted in the Douglas Area. A disposal area (DA) consisting of piled debris (DB) and an excavation containing debris are noted in the southeastern portion of the Douglas Area. Dark-toned material, possibly waste material, is noted adjacent to this excavation, indicating probable burial. A fence contains the portion of the debris pile facing a second larger excavation farther southeast. A dark-toned stain (not annotated) is seen within this excavation. This area was vegetated in 1955. A third rectangular excavation is noted north of the southernmost building in this area.

Probable liquid is visible west of the building where possible stains/wet soil were noted in 1955.

An area of disturbed ground, a pit, and light-toned objects (O) are adjacent to the road at the southern boundary of the Douglas Area.

Mixed Use Area

A wastewater treatment (WWT) facility, not observed in 1955, consisting of five basins, a building, a small square structure approximately as large as an automobile hood, and a cone-shaped object, is seen in the northwestern portion of the Mixed Use Area. No further significant activity is noted; therefore, this wastewater treatment facility will not be annotated or discussed for the remainder of the analysis.

An excavation with a possible dark-toned stain within it is seen west of the Bronson Plating Area.

Dark-toned material is visible west of a parking area where ground scars and dark-toned material were noted in 1955. A group of probable dark-toned containers with adjacent debris is seen farther west. Neatly placed probable light-toned containers and objects are observed farther west.

Dark-toned material similar to that west of the parking area is seen farther south. Probable light-toned containers and objects are scattered over a large area south of the dark-toned material. A small pool of liquid, probably an impoundment, is present east of the probable light-toned containers and objects. Liquid and probable wet soil were noted here in 1955.

A new building is visible in the Mixed Use Area east of the Bronson Plating Area. Liquid is seen south of the aforementioned building in a previously undisturbed area. A dark-toned area that indicates a possible stain or wet soil, and an area of disturbed ground are present near the eastern border of the Bronson Plating Area. A trench extends eastward from the disturbed ground.

Light-toned material is noted south of the railroad where a light-toned area and possible liquid were seen in 1955. Liquid and possible dark-toned liquid, disturbed ground, and piles of debris that appear to be a possible disposal area are observed southeast of the Bronson Plating Area.

Bronson Plating Area

Poor housekeeping is evident in this area. Scattered possible drums (D) mixed with debris are visible along the lagoons in the northern section of this area.

Piled debris, a ground scar, and possible debris (not annotated) are present south of the aforementioned drums. Five areas of dark-toned liquid and/or wet soil are seen in this area. Numerous ground scars (not annotated) are visible near the eastern boundary adjacent to the area of disturbed ground noted in the Mixed Use Area. A linear pile of debris is visible west of the aforementioned ground scars.

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IM - Impoundment
L - Lagoon
LQ - Liquid
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MT - Medium-Toned
O - Object
OS - Open Storage
PM - Piping Materials
ST - Stain
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WS - Wet Soil
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——— Area Boundary
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→·→ Drainage
┬┬┬┬ Edge of Slope
—×— Fence
——— Site Boundary
>—< Trench

FIGURE 6
N. BRONSON IND. AREA APRIL 25, 1958 APPROX. SCALE 1:6,100

SEPTEMBER 23, 1967 (FIGURE 7)

Photography from 1960 was analyzed but not reproduced for this analysis due to its poor resolution and small scale. Any significant features noted in 1960 will be annotated on the 1967 photography.

Old Lagoon Area

The smallest and largest lagoons seen here in 1958 have been combined to create a single lagoon. Four lagoons are currently visible.

New Lagoon Area

A fifth lagoon has been constructed east of the four lagoons where a ground scarred area was noted in 1960.

Douglas Area

A pit with possible liquid and mounded material (MM) interspersed with possible debris, first seen in 1960, are noted at the northwestern boundary. Expansion of the building south of these features occurred between 1958 and 1960. Scattered debris, also observed in 1960, is noted east of the building.

A cleared area (CA) with open storage (OS) of objects, first noted in 1960, is visible in the southeastern portion of the Douglas Area where a disposal area was seen in 1958. The larger excavation seen east of the aforementioned cleared areas in 1958 is filled by 1960.

Scattered possible debris is found east of the cleared area. Probable dark-toned liquid is noted where probable wet soil was seen in 1958.

An area of disturbed ground and a pit noted at the southern area boundary in 1958 and 1960 are not seen this year. Two buildings constructed between 1958 and 1960 are found in the southwestern portion of the area.

Mixed Use Area

An excavation is noted at the northwest corner of the Mixed Use Area. Because of the lack of significant change, this excavation will be annotated but not discussed for the remainder of the analysis.

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FIGURE 7
N. BRONSON IND. AREA SEPTEMBER 23, 1967 APPROX. SCALE 1:6,000

Seventeen horizontal tanks (HT) are seen where possible drums were noted in 1958 and 1960 near the southwest corner of the Mixed Use Area. The probable containers and objects, debris, dark-toned material, and areas of liquid seen in the Mixed Use Area in 1958 and 1960 are no longer visible.

Disturbed ground is visible east of the Bronson Plating Area, northeast of the area of disturbed ground seen in 1958.

An area of light-toned material borders the railroad southeast of the Bronson Plating Area. Light-toned features have been noted here since 1950. Numerous areas of dark-toned liquid are also observed southeast of the Bronson Plating Area. Piled debris annotated with a polygon is noted southwest of the aforementioned dark-toned liquid.

Disturbed ground is no longer present at the southwest corner of the area. Those features noted in 1958 and 1960 may have been associated with the construction of the building seen here.

Bronson Plating Area

An area of possible drums mixed with debris borders the New Lagoon Area. A second area of possible drums mixed with debris is present south of the aforementioned area. Possible drums and debris were also noted at this location in 1958 and 1960.

Staining or wet soil is noted where three such areas were seen in 1960.

SEPTEMBER 4, 1978 (FIGURE 8)

Photography from 1974 was analyzed but not reproduced for this report due to the small scale of the photography and lack of significant change. Significant findings from 1974 will be annotated and discussed with this year of analysis.

Old Lagoon Area

Two of the lagoons in this area are filling with vegetation. The drainage channel seen here since 1950 is no longer visible.

New Lagoon Area

Two lagoons are noted where five were present in 1967. A building, partially located in the Bronson Plating Area, has been constructed between 1967 and 1974. This building was constructed at the location of the three lagoons observed in 1967.

Two piles of debris and a grouping of containers (not annotated) are seen adjacent to the building. An area of liquid, possibly a remnant of the lagoons, is seen north of the building.

Douglas Area

Dark-toned stains are noted in two locations west of a building in the southeast corner of the area.

The pit with possible liquid, mounded material with possible debris, and the debris noted east of the expanded building in 1967 are no longer visible.

Mixed Use Area

Piled medium-toned (MT) material is seen east of a building in the center of this area. Two access roads extend from the roadway to two areas of disturbed ground. Liquid is noted at the southwest corner of the Mixed Use Area.

Sixteen of the seventeen horizontal tanks seen in 1967 were removed by 1974. No tanks are noted in this year's photography.

Darker-toned signatures indicate possible liquid and/or wet soil west of the Bronson Plating Area.

The vertical tanks seen at the northeast edge of the site since 1955 were removed between 1967 and 1974.

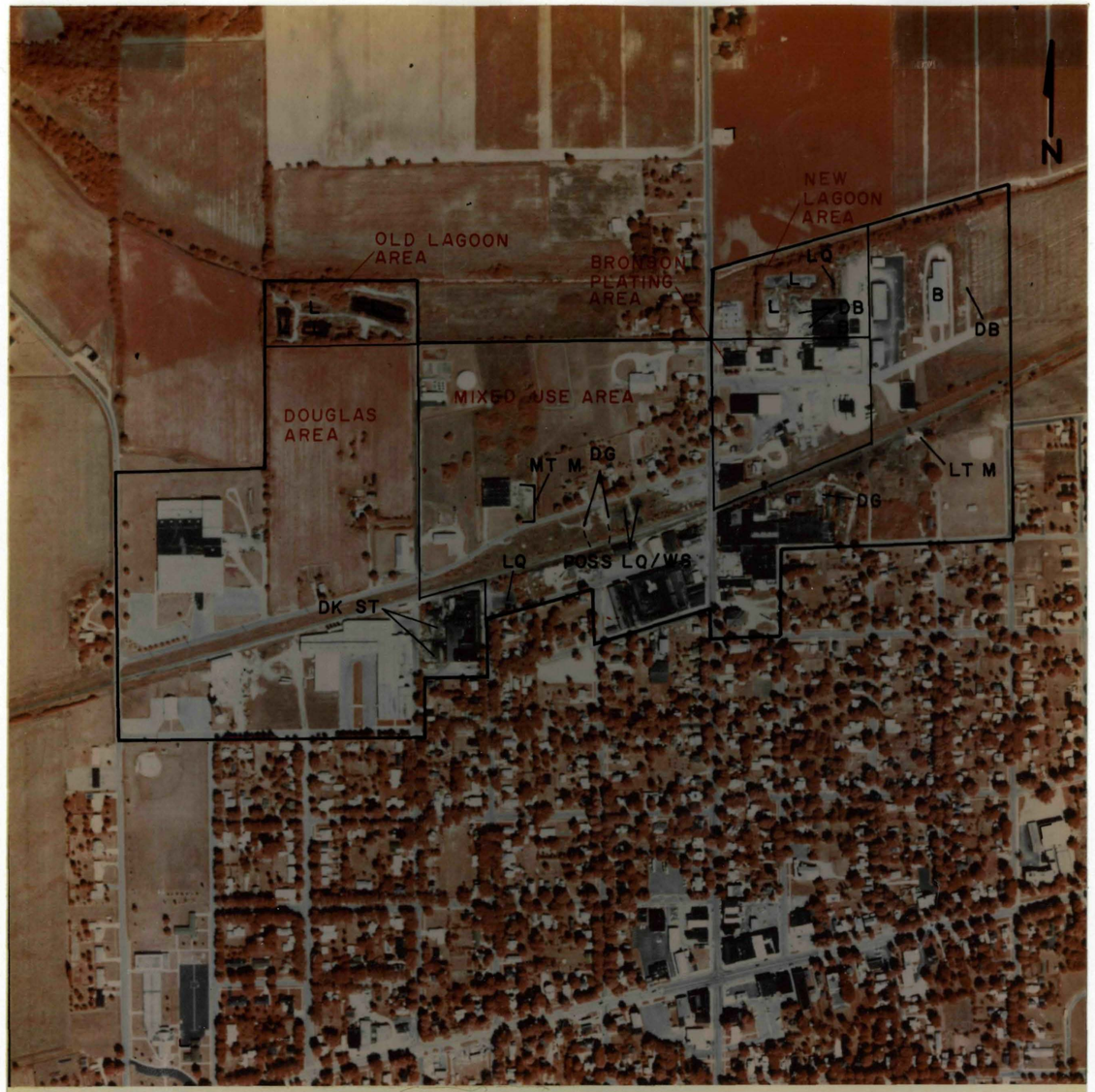
A pile of debris bordering a new building is seen in the northeast corner of the Mixed Use Area. This building is located northeast of where disturbed ground was noted in 1967.

Light-toned material continues to border the railroad southeast of the Bronson Plating Area.

An area of disturbed ground is seen south of the Bronson Plating Area at the end of an access road.

Bronson Plating Area

No significant features are noted.



LEGEND

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C - Containers
CA - Cleared Area
D - Drums
DA - Disposal Area
DB - Debris
DG - Disturbed Ground
DK - Dark-toned
EQ - Equipment
EX - Excavation
GS - Ground Scar
HT - Horizontal Tank
IM - Impoundment
L - Lagoon
LQ - Liquid
LT - Light-toned
M - Material
MM - Mounded Material
MT - Medium-toned
O - Object
OS - Open Storage
PM - Piping Materials
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—·—→ Drainage
┬┬┬┬ Edge of Slope
———<——— Fence
——— Site Boundary
>——< Trench

FIGURE 8
N. BRONSON IND. AREA

SEPTEMBER 4, 1978

APPROX. SCALE 1:6,400

JUNE 7, 1988 (FIGURE 9)

Old Lagoon Area

The material in the lagoons appears to have solidified. A combination of vegetation and liquid is seen within the lagoons.

New Lagoon Area

Additional construction activity has occurred in this location since 1978. An addition was built onto the building seen here, and the addition was constructed over a filled portion of the lagoon. The remaining lagoons are vegetated and appear to have been partially filled.

Douglas Area

Containers are noted east of the building in the west central portion of the site where debris was seen in 1967.

Neatly piled probable containers and drums are noted south of the railroad. Southeast of the aforementioned probable containers and drums is a fenced (not annotated) area of haphazardly placed containers and piping materials, as well as possible drums and debris. Possible drums/debris are also noted immediately adjacent to the building here.

An area of containers is visible to the west.

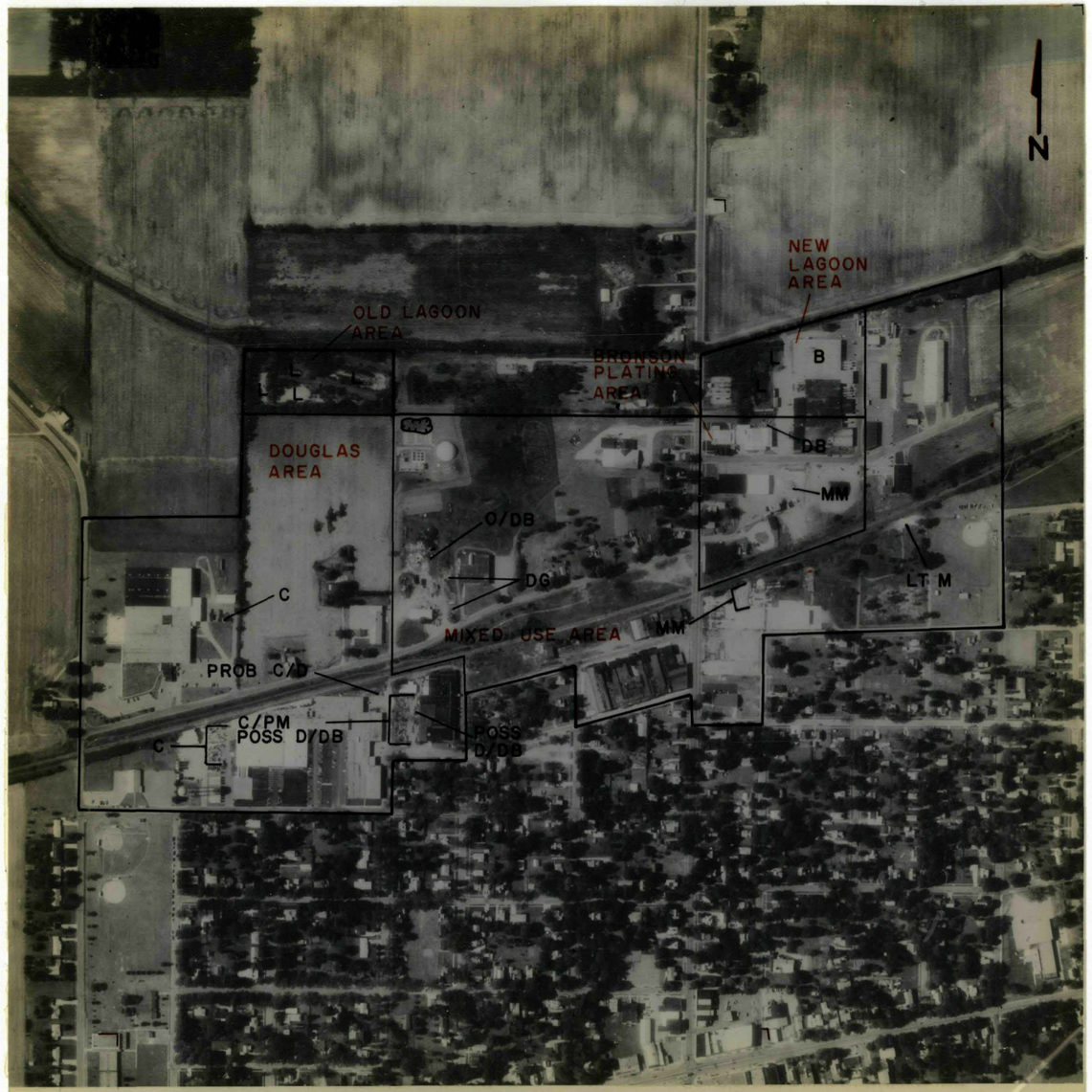
Mixed Use Area

A concentration of objects and debris, and two areas of disturbed ground are noted near the western boundary of the Mixed Use Area. Disturbed ground and access roads seen in 1978 are not present this year. Mounded material is noted south of the Bronson Plating Area.

Light-toned material is evident southeast of the Bronson Plating Area. Light-toned materials and possible light-toned liquid have been seen at this location since 1950, and a possible impoundment was noted here in 1938.

Bronson Plating Area

Debris and mounded material are noted within the area. The mounded material is in the center of an otherwise cleared area, and is similar in appearance to mounded material noted elsewhere on the site.



LEGEND

B - Building
C - Containers
CA - Cleared Area
D - Drums
DA - Disposal Area
DB - Debris
DG - Disturbed Ground
DK - Dark-Toned
EQ - Equipment
EX - Excavation
GS - Ground Scar
HT - Horizontal Tank
IM - Impoundment
L - Lagoon
LQ - Liquid
LT - Light-Toned
M - Material
MM - Mounded Material
MT - Medium-Toned
O - Object
OS - Open Storage
PM - Piping Materials
ST - Stain
U - Uplands
VT - Vertical Tanks
W - Wetlands
WS - Wet Soil
WWT - Wastewater Treatment

- - - Access Road
——— Area Boundary
←——→ Channelized Drainage
⊐ C Culvert
—·→ Drainage
TTTTT Edge of Slope
←—— Fence
——— Site Boundary
>—< Trench

FIGURE 9
N. BRONSON IND. AREA

JUNE 7, 1988

APPROX. SCALE 1:6,100

REFERENCES

AERIAL PHOTOGRAPHY

Date	Agency	Mission Code	Agency Frame #	Orig. Scale	EPIC Frame #
June 13, 1938	NARS[1]	BDE	3:80-83	1:20,000	39253-39256
July 1, 1950	ASCS[2]	BDE	2G:70-72	1:20,000	39419-39421
July 18, 1955	ASCS	BDE	1P:39-41	1:20,000	39416-39418
April 25, 1958	USGS[3]	VRS	1:25-28	1:17,000	39326-39329
July 8, 1960	ASCS	BDE	2AA:116-118	1:20,000	39413-39415
September 23, 1967	ASCS	BDE	3HH:259-261	1:20,000	39422-39424
October 21, 1974	ASCS	26023	274:161-163	1:40,000	39410-39412
September 4, 1978	MDNR[4]	73-47	56,57	1:24,000	39684,39685
June 7, 1988	MDNR	413-330	186,187	1:24,000	39662,39663

MAPS

Source	Name	Scale	Date
USGS	Bronson North, Mich.	1:24,000	1960
USGS	Bronson South, Mich.	1:24,000	1960
NWI[5]	Bronson North, Mich.	Based on 1981 aerial photography	
NWI	Bronson South, Mich.	Based on 1981 aerial photography	

[1]National Archives and Records Administration

[2]Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture

[3]U.S. Geological Survey, U.S. Department of the Interior

[4]Michigan Department of Natural Resources

[5]National Wetlands Inventory, U.S. Fish and Wildlife Service, U.S. Department of the Interior

PUBLICATIONS

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